

Translating complex system analysis into a story-based film for participatory design: Dilemmas in suicide prevention

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THE WORK IN CONTEXT

It has been widely recognised that whole systems approaches are required, but underexplored in the design and development of complex healthcare systems. Human factors and ergonomics (human factors) has adopted and developed various conceptual models and frameworks in order to support the application of systems approaches such as Cognitive Work Analysis (CWA), Systems Engineering Initiative for Patient Safety (SEIPS), STAMP and FRAM to name but a few. Application of these systems approaches benefit from the involvement of all relevant stakeholders and the inclusion of their input in system design. However, evidence also suggests that involving healthcare stakeholders is challenging mainly due to their lack of time and system expertise. Understanding outputs of system analysis, usually in the form of complex system maps, tends to require time and certain level of visual learning capacity, which some people don't have. The full potential of a participatory systems approach has been hardly realised, so there is a need for improving the way the outputs of systems approaches are communicated. This study, therefore, aims to translate the outputs of complex system analysis into a story-based film for participatory design.

KEYWORDS

Healthcare outcomes, Systems thinking, Participatory Design, Systems Visualisations

A brief outline of the work carried out

The study used a purposive sample to recruit participants. This sampling aimed to have a representativity respect age, chronic conditions and type of healthcare management roles. The participants were recruited from the East Midlands region in the UK. Twenty-one persons were recruited for this study. Ten persons living with chronic conditions such as diabetes, sarcoidosis and arthritis, among others, formed the patient group. The providers' group was created by (n=5) senior managers, (n=4) commissioners and (n=2) local authorities.

Graphic facilitation mapping interviews were conducted to build outcome interrelationship maps as follows:

- 1) Participants selected meaningful/ideal outcomes from the sixty-two facilitated. The meaning was clarified.
- 2) Participants made sense of outcomes by creating influence relationships/groups. Simultaneous verbalisation occurred.
- 3) Participants selected the most important outcome from their map.

Then, the individual outcome maps were synthesised using network analysis. The following criteria were established to prepare the database for the network analysis:

- Each outcome was a node.
- Each link was an undirected edge with a weight of two.
- Each arrow was a directed edge with a weight of two.
- Outcomes within a group were assigned an undirected edge with a weight of one.pl

Findings/solutions (the outcome)

Two outcome-based system visualisations (one per group) were generated. These visualisations communicate the rich understanding of the outcomes. Also, the visualisations have been useful to find agreements, disagreements and critical outcomes between patients and providers.

- Agreements: wellbeing and quality of life are meaningful outcomes for both groups. However, different relationships were created between outcomes, which suggest various perceptions.
- Disagreements: patients prioritise outcomes such as personal resilience and self-monitoring, while providers prioritise integrated working, (re)admissions and hospitalisations
- Critical outcomes: outcomes such as anxiety (prioritised by most of the patient participants) is not well connected with other outcomes. This finding may suggest that isolated outcomes are perceived by patients as weakly attended in a holistic way.

Therefore, the systems visualisations offer a comprehensive way to recognise the interdependencies and unintended consequences of outcomes to inform decision-making.

Impact

These findings strengthen the importance of understanding outcomes interrelations for healthcare systems development.

Overall, this practical approach may contribute to a holistic outcomes integration for healthcare systems developing. The mapping processes the interrelated outcomes collection and negotiate outcome trade-offs. The network analysis offers a novel visual communication strategy to identify critical outcomes for share-decision making in healthcare systems development.

This approach may also complement other systems frameworks such as SEIPS 2.0 and CWA. Both frameworks may find this approach useful to integrate a holistic outcome understanding to adapt healthcare systems.